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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/800,292	03/12/2004	Sun-Ho Kang	051583/294	8248

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EXAMINER	
PARSONS, THOMAS H	
ART UNIT	PAPER NUMBER
1745	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/800,292	KANG ET AL.	
	Examiner	Art Unit	
	Thomas H. Parsons	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 March 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14 and 18-20* is/are rejected.

7)☒ Claim(s) *15-17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

Page 5, paragraph [0019], line 6, suggest changing "adding" to --added--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-5, 7-14, and 18-20 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP2003-034537 (hereafter JP '537).

Claim 1: JP '537 discloses an electrode material comprising compositions of $Li_{1+x}Ni_{\alpha}Mn_{\beta}A_{\gamma}O_2$ wherein **A** is chosen from the group consisting of **Mg,** Zn, **Al, Co,** Ga, B, Zr, Ti and further wherein **x** is between about 0 and 0.2, α is between about 0.1 and 0.5, β is between about 0.4 and 0.6, and γ is between about 0 and about 0.1. *See abstract, and paragraphs [0036]-[0038].*

In particular, JP '537 discloses an electrode material comprising compositions of $Li_xNi_yMn_zQ_{(1-y-z)}O_2$ wherein Q (which corresponds to A) is chosen form the group consisting of Mg, Al, Co and $0<x\leq1.2$ (wherein x corresponds to (1+x), y and z are $0.7\leq y/z\leq9.0$ (where y and z correspond to α and β, respectively) and 1-y-z (which corresponds to γ) is $0\leq1-y-z\leq0.5$.) and Q is chosen from the group consisting of Mg, Al, and Co.

As an example,

1. Assume 1+x = 1.2, 1-y-z=0,

@ y/z=0.7, y=0.7z @y/z=9, y=9z

1-0.7z-z=0 1-9z-z=0

1=1.7z 1=10z

z=0.58 z=0.1

Therefore, $z=\beta$ is between 0.1 and 0.58 which falls within the claimed range.

@y/z=0.7, z=y/0.7, z=1.42y @y/z=9, z=1/9y, z=0.1y

1-y-1.42y=0 1-y-0.1y=0

1=2.43y 1=1.1y

y=0.41 y=0.9

Therefore, y=α is between 0.41 and 0.90 which falls within the claimed range.

In the alternative, in light of the range limitations taught by JP '537, it would have been within the skill of, or obvious to, one having ordinary skill in the art at the time the invention was made to have selected the values for x, y, z to arrive at the claimed or desired composition.

Claim 2: The rejection of claim 2 is as set forth above in claim 1.

Claim 3: The rejection of claim 3 is as set forth above in claim 1 wherein A (Q) is Mg and further wherein x is between about 0 and 0.2, α is between about 0.1 and 0.5, β is between about 0.4 and 0.6, and γ is between about 0.01 and about 0.1.

Claim 4: The rejection of claim 4 is as set forth above in claim 1 wherein A is Al and further wherein x is between about 0 and 0.2, α is between about 0.15 and 0.5, β is between about 0.45 and 0.6, and γ is between about 0.01 and about 0.1.

Claim 5: The rejection of claim 5 is as set forth above in claim 1 wherein A is Co and further wherein x is between about 0 and 0.2, α is between about 0.15 and 0.5, β is between about 0.45 and 0.6, and γ is between about 0.01 and about 0.1.

Claims 7-8: The recitation "wherein the material is manufactured by a solid state reaction method" has been considered, and construed as a product-by-process limitation.

Claims 9-10: The recitation "wherein the material is manufactured by an aqueous solution based process", has been considered, and construed as a product-by-process limitation.

Claims 11-12: The recitation "wherein the material is manufactured by a sol-gel method", has been considered, and construed as a product-by-process limitation.

"[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted) (Claim was directed to a novolac color developer. The process of making the developer was allowed. The difference between the inventive process and the prior art was the addition of metal oxide and carboxylic acid as separate ingredients instead of adding the more expensive pre-reacted metal carboxylate. The product-by-process claim was rejected because the end product, in both the prior art and the allowed process, ends up containing metal carboxylate. The fact that the metal carboxylate is not directly added, but is instead produced in-situ does not change the end product.).

Claim 13: JP '537 further discloses that the electrode material is a cathode (i.e. a positive electrode)(paragraph [0042].

Claim 14: JP '537 discloses a method for forming an electrode material made of substituted lithium nickel-manganese oxides, comprising the steps of: producing compositions of $Li_{1+x}Ni_{\alpha}Mn_{\beta}A_{\gamma}O_2$ wherein A is chosen from the group consisting of Mg, Zn, Al, Co, Ga, B, Zr, and Ti, and further wherein x is between about 0 and 0.2, α is between about 0.1 and 0.5, β between about 0.4 and 0.6, and γ between about 0 and about 0.1 (as set forth above in claim 1)

through a electrode forming process chosen from a solid-state reaction method (i.e. dry process of calcining which is similar to that instantly disclosed)(paragraph [0008]).

Claim 18: JP '537 discloses an electronic device (paragraph [0002]) comprising: an electrode comprised of an electrode material as set forth above in claim 1having the formula $Li_{1+x}Ni_{\alpha}Mn_{\beta}A_{\gamma}O_2$ wherein A is chosen from the group consisting of Mg, Zn, Al, Co, Ga, B, Zr, and Ti and further wherein x is between about 0 and about 0.2, α is between about 0.1 and about 0.5, β is between about 0.4 and about 0.6, and γ is between about 0 and about 0.1.

Claim 19: JP '537 discloses an electronic device comprises a rechargeable battery (i.e. a lithium secondary battery).

Claim 20: JP '537 discloses that the electrode is a cathode comprising a mixture of about 80 wt. % of the electrode material, about 10 wt. % carbon, and about 10 wt. % polyvinylidene fluoride as a binder (paragraph [0045]).

5. Claims 1-2, 4-6, and 7-14, and 18-19 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP9-=035715 (hereafter JP '715).

Claim 1: JP '715 discloses an electrode material comprising compositions of $Li_{1+x}Ni_{\alpha}Mn_{\beta}A_{\gamma}O_2$ wherein **A** is chosen from the group consisting of **Mg,** Zn, **Al**, **Co**, Ga, B, Zr, Ti and further wherein **x** is between about 0 and 0.2, α is between about 0.1 and 0.5, β is between about 0.4 and 0.6, and γ is between about 0 and about 0.1.

In particular, JP '715 discloses an electrode material comprising compositions of $L_xNi_{1-y}M_yO_2$ where M expresses at least one element chosen from Zn, Al, Co, B, and Ti and further wherein x is $0<x\leq1.2$ and y is $0<y<1$. See paragraph [0023].

Assuming that y corresponds to α, β, and γ and M expresses two elements, M1 and M2, JP '715 discloses a composition described as $L_xNi_{1-y}M_{y1}M_{y2}O_2$ wherein y1+y2 = y which is the same as that instantly claimed.

However, in the alternative, in light of the range limitations taught by JP '715, it would have been within the skill of, or obvious to, one having ordinary skill in the art at the time the invention was made to have selected the values for x and M to arrive at the claimed or desired composition.

Claim 2: The rejection of claim 2 is as set forth above in claim 1.

Claim 4: The rejection of claim 4 is as set forth above in claim 1 wherein A is Al and further wherein x is between about 0 and 0.2, α is between about 0.15 and 0.5, β is between about 0.45 and 0.6, and γ is between about 0.01 and about 0.1.

Claim 5: The rejection of claim 5 is as set forth above in claim 1 wherein A is Co and further wherein x is between about 0 and 0.2, α is between about 0.15 and 0.5, β is between about 0.45 and 0.6, and γ is between about 0.01 and about 0.1.

Claim 6: The rejection of claim 6 is as set forth above in claim 1 wherein A (M) is Ti and further wherein x is between about 0 and 0.2, α is between about 0.2 and 0.5, the β is between about 0.4 and 0.6, and γ is between about 0.01 and about 0.1.

Claims 7-8: The recitation "wherein the material is manufactured by a solid state reaction method" has been considered, and construed as a product-by-process limitation.

Claims 9-10: The recitation "wherein the material is manufactured by an aqueous solution based process", has been considered, and construed as a product-by-process limitation.

Claims 11-12: The recitation "wherein the material is manufactured by a sol-gel method", has been considered, and construed as a product-by-process limitation.

"[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted) (Claim was directed to a novolac color developer. The process of making the developer was allowed. The difference between the inventive process and the prior art was the addition of metal oxide and carboxylic acid as separate ingredients instead of adding the more expensive pre-reacted metal carboxylate. The product-by-process claim was rejected because the end product, in both the prior art and the allowed process, ends up containing metal carboxylate. The fact that the metal carboxylate is not directly added, but is instead produced in-situ does not change the end product.).

Claim 13: JP '715 further discloses that the electrode material is a cathode (i.e. a positive electrode)(paragraph [0021].

Claim 14: JP '715 discloses a method for forming an electrode material made of substituted lithium nickel-manganese oxides, comprising the steps of: producing compositions of

$Li_{1+x}Ni_{\alpha}Mn_{\beta}A_{\gamma}O_2$ wherein A is chosen from the group consisting of Mg, Zn, Al, Co, Ga, B, Zr, and Ti, and further wherein x is between about 0 and 0.2, α is between about 0.1 and 0.5, β between about 0.4 and 0.6, and γ between about 0 and about 0.1 (as set forth above in claim 1) through a electrode forming process chosen from a solid-state reaction method (i.e. dry process of calcining which is similar to that instantly disclosed)(paragraphs [0045]-[0046]).

Claim 18: JP '715 discloses an electronic device (paragraphs [0002-[003]) comprising: an electrode comprised of an electrode material as set forth above in claim 1having the formula $Li_{1+x}Ni_{\alpha}Mn_{\beta}A_{\gamma}O_2$ wherein A is chosen from the group consisting of Mg, Zn, Al, Co, Ga, B, Zr, and Ti and further wherein x is between about 0 and about 0.2, α is between about 0.1 and about 0.5, β is between about 0.4 and about 0.6, and γ is between about 0 and about 0.1.

Claim 19: JP '715 discloses an electronic device comprises a rechargeable battery paragraph [0003]).

Allowable Subject Matter

6. Claims 15-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Reasons for Indicating Allowable Subject Matter

7. The following is a statement of reasons for the indication of allowable subject matter:

The claimed invention is directed towards specific steps for manufacturing the claimed electrode material by a solid state reaction method, an aqueous solution based process, and a sol-

gel method. The specific steps for each of these methods are neither taught nor suggest in the prior art reference if record.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas H. Parsons whose telephone number is (571) 272-1290. The examiner can normally be reached on M-F (7:00-4:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PATRICK J. RYAN
SUPERVISORY PATENT EXAMINER

Thomas H Parsons
Examiner
Art Unit 1745

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